

## ABSTRACT

A system and method of converting waste plastics into hydrocarbon oil comprises  
5 a thermal cracking reactor, into which the waste plastics are cracked at a  
temperature in the range of 270-800°C to obtain partly gaseous hydrocarbons,  
partly liquid hydrocarbons, and remaining residues. A continuous thermal cracking  
and residual discharging portion is connected to have the liquid hydrocarbons  
gradually and fully cracked into gaseous hydrocarbons, while the residues are  
10 discharged at a residual discharge outlet. A chlorine removal portion is connected  
to receive the gaseous hydrocarbons to remove chlorine from it. A catalytic  
cracking reactor is connected to the chlorine removal portion to have the gaseous  
hydrocarbons catalytic cracking with an acid catalyst. A three-stage cooling portion  
is adopted to have the catalytically cracked gaseous hydrocarbons fully converted  
15 into liquid hydrocarbons, i.e., hydrocarbon oil. A pressurized activation reaction  
portion is provided to remove few amount of S. N. P. from the liquid hydrocarbons  
to obtain purified hydrocarbon oils.